

### Claims

1) Door handle with built-in spring latch actuation mechanism for door opening, of the type comprising a body-handle (1) with L-shaped profile, with a first rectilinear section (TR) parallel to the door that basically acts as handle, joined to a second inclined section (TI) that is inserted into the door, characterised in that the body-handle (1) houses an opening lever (3, 30) pivoted on a pin with vertical axis (6), which supports an opening button (3a) with ejection spring (7), and ends with a hook (3c, 30c) that projects from the front end of the inclined section (TI) of the body-handle and can be inserted through a suitable slot (A) located on the leaf (B) of the door, reaching the housing and guiding box (4, 40) of the spring latch (5, 50) actuated by the hook (3c, 30c).

2) Door handle as defined in claim 1, characterised in that the body-handle (1) is composed of a lower part (1a) and an upper part (1b) that are matched together and are provided at the end of the inclined section (TI) with corresponding pins (1c) that engage into holes (P) of the door leaf, into which the screws (V) that fix the external handle (ME) to the internal handle (MI) are inserted and tightened.

3) Door handle as defined in one of the above claims, characterised in that it comprises a finishing moulding (2) used to cover the central junction line between the parts (1a, 1b), which is interrupted in the internal section of the handle provided with a thin slot (F) from which the opening button (3a) of the opening lever (3, 30) projects.

4) Door handle as defined in one of the above claims, characterised in that the lower part (1a) houses a rectilinear track (8) in the inclined section (TI), which exactly houses a sliding blocking rod (9, 90), with one end (9a, 90a) that projects on the body-handle (1), and one end that terminates with a point (9b) or catch (90b) capable of passing through the slot (A) and being positioned, in case of actuation of the blocking rod (9, 90) in such a way to prevent the actuation of the catch (5) by acting on the opening lever (3) mounted on the external handle (ME) of the door.

5) Door handle as defined in the above claim, characterised in that the blocking rod (9, 90) has an upper hooking pin (9c, 90c) with vertical axis that, at the end of the actuation travel of the rod (9, 90), engages into a notch (3d, 30d) suitably provided along the external profile of the opening lever (3, 30) that is positioned partially above the blocking lever (9, 90) subject to the ejection thrust of a spring (10) housed inside a cavity (8a) on the track (8).

6) Door handle as defined in one or more of the above claims, characterised in that the hook (3c) of the opening lever (3) penetrates the housing and guiding box (4) of the spring latch (5), whose body is provided with a through hole (5a) into which the point of the hook (3c) is inserted.

7) Door handle as defined in one or more of claims 1 to 6, characterised in that the housing and guiding box (40) has a housing (40a) for the spring latch (50) that is provided with a rear hooked appendix (50a), which engages with the head (51a) of a vertical lever (51), whose base is pivoted by means of a horizontal pin (52) inside a fork (40) on the rear side of the plate (52) that supports the box (40) and is tightened onto the leaf (B) of the door in such a way that the ending hook (3c, 30c) of the opening lever (3, 30) engages with the lever (51) in its central section.

8) Door handle as defined in claim 7, characterised in that the opening lever (30) mounted on the internal handle (MI) ends with a forked appendix (30b) with a first hook (30c) and a second hook (30e); the first hook (30c) in idle state being adjacent and overlapped with respect to the hook (3c) of the opening lever (3) mounted on the external handle (ME).

9) Door handle as defined in claim 8, characterised in that the opening lever (90) mounted on the internal handle (MI) ends with a catch (90b) capable of interfering, when the rod (90) is actuated, with the internal profile of the hook (3c) of the opening lever (3) mounted on the external handle (ME), thus preventing the door from being opened from outside.

10) Door handle as defined in claim 8, characterised in that, when the rod (90) is inserted, the second hook (30d) is engaged on the back of the lever (51), thus being interfered when the lever (51) oscillates backwards due to a backward travel of the latch (50) not caused by the actuation of the opening

lever (30).

11) Door handle as defined in one or more of the above claims, characterised in that it comprises a lock with cylindrical block (12) with key (11), housed at the end of the rectilinear section (TI) of the external handle (ME); it being  
5 provided that the shaft (12a) of the cylinder (12) is fixed to an L-shaped bracket (13), whose horizontal wing (13a) is dimensioned in such a way that when it is positioned on a vertical plane, the opening lever (3, 30) cannot be actuated since the insertion of the button (3a) inside the handle-body (1) is opposed by the wing (13a) that, conversely, cannot obstruct the travel of the  
10 opening button (3a) when the wing (13a) is in horizontal parallel position with respect to the button (3a).

12) Door handle as defined in one of the above claims 1 to 10, characterised in that it comprises a lock with bolt (121) with key (110) housed at the end of the rectilinear section (TI) of the external handle (ME); it being provided that,  
15 once it has reached the maximum forward position, the bolt (121) can be positioned immediately behind the opening button (3a), thus opposing the actuation of the opening lever (3,30).

13) Door handle as defined in claim 12, characterised in that the bolt (121) is housed in a cylindrical chamber (120), in which the key (110) is inserted from  
20 the back opening, while the bolt (121) projects from the front opening, which is actuated by the key (110) by means of a rotary intermediate drum (122) housed inside the chamber (120), since the key (110) is provided with a front pair of pins (110a) suitable to be inserted into a corresponding pair of holes (122a) on the rear ending section (122b) of the drum (122), which is frontally  
25 provided with a central pin (122) inserted into a suitable housing (121a) on the rear ending section (121b) of the bolt (121); it being provided that the pin (122c) and the housing (121a) are coupled in such a way that the pin (122c) can slide in axial direction inside the housing (121a), but cannot turn, so that each rotary movement of the drum (122) is transmitted to the bolt (121),  
30 which can move forward or backward in axial direction with respect to the drum, without losing prismatic coupling thanks to the pin (122c).

14) Door handle as defined in claim 13, characterised in that the key (110) is

provided with a reference radial dowel (110c) that projects from the lateral surface and is inserted and slides inside a suitable groove (120c) on the internal surface of the rear opening (120a) of the chamber (120); it being provided that the groove (120c) has an L-shaped profile formed of a first  
5 longitudinal section and a second transversal section that extends for a semicircle.

15) Door handle as defined in claim 13, characterised in that both the rotary drum (122) and the bolt (121) have guiding grooves (122d and 121d) on the lateral surface, where radial pins (122e and 121e) applied on the chamber  
10 (120) engage; where the guiding groove (122d) of the rotary drum (122) has a circular development on an orthogonal plane to the rotation axis of the drum, and the guiding groove (121d) of the bolt (121) has a circular development formed of a first section (121d') identical and parallel to the groove (122d) and a second section (122d'') with helical development.

15 16) Door handle as defined in claims 11 and 12, characterised in that the key (11) and the key (110) are housed inside a shaped piece (111) that protects and hides the real key, with the piece being shaped in such a way that it matches the aesthetics of the body-handle (1).